

# Economics 4213

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## 1 Purpose

The purpose of this course is to prepare **undergraduate** students to use regression analysis given a well-defined economic problem. Emphasis will be placed on your ability to understand when to adopt a particular model or technique, how to implement it, and how to interpret your results. This means that you will be spending a significant portion of your time this semester in front of the computer terminal.

### 1.1 Recommendation

I recommend that you find a study partner. There is a lot of material to learn in this course and much of it will appear to be overly technical (though I promise you that I will avoid anything that I do not deem necessary to achieve our stated purpose). Each person in the course will have different opportunity costs associated learning the many things that we are covering. Therefore there are ample possibilities to use the law of comparative advantage to *your advantage*.

### 1.2 A Warning

This class is not typical of many at OSU in one important respect. This course requires you to do a lot more work outside of class than you are probably used

to. If you are not willing or are unable to spend the time required (which will average about 6 hours a week outside of class—more if you run into problems), then you should find another class to take while you still can. The most common complaints about this class are that it takes too much time, it is too hard, and Dr. Adkins expects us to know too much. My response is, ‘welcome to econometrics.’ This is the nature of the course and similar to other econometrics courses offered at this level.

Because this is really an undergraduate course, I ask that graduate students limit questions to material that is specifically being covered. Peripheral discussions about more advanced topics, while welcome in a graduate level course, tend to demoralize the undergraduates. Hence, I reserve the right to decline to answer questions that I deem to be beyond the scope of the course. If, as a graduate student, you find the discussion too elementary, then please be considerate of others who may in fact be struggling with the course.

## 2 Textbooks

### Required

Hill, Griffiths, and Judge, *Undergraduate Econometrics*, 2nd Edition, John Wiley & Sons, 2000.

### Other Sources

*Using EViews for Undergraduate Econometrics, 2nd Edition*. ISBN: 0-471-41239-2. October 2001.

Peter Kennedy, *A Guide to Econometrics*, 5th Edition, MIT Press.

Also, visit

[http://www.bus.lsu.edu/economics/faculty/chill/personal/undergraduate\\_econometrics.htm](http://www.bus.lsu.edu/economics/faculty/chill/personal/undergraduate_econometrics.htm)

for examples, data sets, and textbook errata.

## 3 Prerequisites

This course requires you to work with basic probability, statistics, algebra, and to use EViews. I will be teaching you a little matrix algebra and I will use a very small amount of calculus. You will not be asked to derive estimators using

either of these tools. They are used in order for you to see where the estimators come from (as opposed to believing that they come from the ether). As prerequisites I recommend 2 courses in statistics in addition to a good command of algebra. You should have some notion about what random variables are, what a probability distribution is, what a statistic is, and what a hypothesis test is. These are things that we will cover, but we move through them quickly. If you haven't learned about these before you'll never be able to keep up. It is not necessary that you have any previous experience with linear regression, though this would be *very* helpful.

## 4 Course Outline

1. An Introduction to Econometrics
2. Some Basic Probability Concepts
3. The Simple Linear Regression Model: Specification and Estimation
4. Properties of the Least Squares Estimators
5. Inference in the Simple Regression Model: Interval Estimation, Hypothesis Testing, and Prediction
6. The Simple Linear Regression Model: Reporting the Results and Choosing the Functional Form
7. The Multiple Regression Model
8. Further Inference in the Multiple Regression Model
9. Dummy (Binary) Variables
10. Nonlinear Models
11. Heteroskedasticity
12. Autocorrelation
13. Random Regressors and Moment Based Estimation (time permitting)
14. Simultaneous Equations
15. Distributed Lag Models (time permitting)
16. Regression with Time Series Data (time permitting)
17. Writing and Empirical Research Report, and Sources of Economic Data

## 5 Exams

There will be 3 exams in the course. The final (exam 3) may include a take-home portion that will be due at the beginning of the period at the time of our regularly scheduled final exam.

## 6 Paper

Graduate students in the course will be required to write a paper. You will have to pick a topic, find data, conduct the statistical analysis, and write a report. I have established a time-line that **must** be followed. You will have to begin work on your paper immediately. At the time you turn in your topic, you must also have identified and collected the data that you will need for it. The statistical analysis is to be done in EViews. Additionally, I will not accept papers that are being prepared for other classes or are otherwise part of your plan of study (e.g., honors thesis, masters creative component, masters report, masters thesis, dissertation, etc.).

Tips on finding data and writing your paper can be found at Bob Parks website:

[http://econ413.wustl.edu/fa03/econometrics\\_paper.doc](http://econ413.wustl.edu/fa03/econometrics_paper.doc).

The paper schedule is as follows:

### Paper Deadlines

Topic Due	September 4
Outline Due	September 25
Preliminary results	October 16
Rough Draft	October 30
Paper Due	November 25

When you turn in your paper, I expect to see (in an appendix) your data and the computer programs you used to do the analysis.

In addition to your paper, you will also be required to complete all other homework assignments. Remember, no assignment will be accepted if turned in past the due date. For reference, 'Beginning of week' means on Tuesday and 'End of week' means Thursday. The paper must be written in a proper form, using standard English grammar and correct spelling. The paper must also contain appropriate citations for any other author's work that requires it. Any portion

of the paper assignment (topic, outline, results, rough draft) that has 5 or more grammatical and/or spelling errors will be returned for further editing and a grade deduction will be made. **If your final draft contains 5 (or more) such errors, you will receive a grade of zero for the paper.** Edit carefully! Earning a zero on this paper means that the best you can do in the course is a grade of C. You have been warned. You may refer to the last chapter of your textbook for guidance on the proper format.

## 7 Grades

Your grade in this class will be based on your performance on 3 exams, homework assignments, and—for Graduate students—your term paper. Other than the term paper, all other assignments and tests will be the same for both graduate and undergraduate students. All assignments will be graded using the same standard. However, final course grades will be assigned based on different standards. **That means that undergraduates are not competing with the grad students for As and Bs!** Naturally, a higher performance standard applies to grad students in determination of the final grade.

The exams and homework will receive the following weights. Graduate students may be graded using a different standard than undergraduates.

### 7.1 Undergraduate Student Grades

Grades for undergraduate students will carry the following weights and be measured according to the accompanying scale.

#### Grade Weights

Exam 1	25%
Exam 2	25%
Exam 3	30%
Homework	20%

#### Grades

90%–100%	A
76%–90%	B
60%–75%	C
50%–60%	D
< 50%	F

Note: Exam 3 may contain a take-home portion that will require you to do some work using EViews. This is one reason why it carries a bit more weight than the other exams.

## 7.2 Masters Student Grades

Grades for masters degree students will carry the following weights and be measured according to the accompanying scale.

### Grade Weights

Exam 1	20%
Exam 2	20%
Exam 3	20%
Homework	15%
Paper	25%

### Grades

90%–100%	A
80%–89.9%	B
70%–79.9%	C
60%–69.9%	D
< 60%	F

## 7.3 Doctoral Student Grades

Grades for doctoral students will carry the following weights and be measured according to the accompanying scale.

### Grade Weights

Exam 1	20%
Exam 2	20%
Exam 3	20%
Homework	15%
Paper	25%

### Grades

93%–100%	A
84%–92.9%	B
75%–83.9%	C
67%–74.9%	D
< 67%	F

Note: As part of your paper assignment, doctoral students are expected to produce more in the way of a literature review than the masters students. Also, I expect complete and proper citations of all work used and referred to in your paper.

## 8 Homework

There will be a significant amount of homework in the course. The best way to learn econometrics is to do econometrics. A large portion of your homework will require you to use a computer. The computer software we are using is EViews. EViews is a Windows program that operates under the Windows 2000 or Windows XP operating system on the microcomputers in the CBA lab.

I will not accept late homework under any circumstance. I expect homework to be legible and well organized. I encourage you to work with others in the class while doing homework, and may turn in assignments in groups of 2. The homework receives style points, so identical answers may receive different grades. I am predisposed to work that is well organized and legible.

### 8.1 Homework Grade Scale

In order to speed the grading process (other things equal, the faster the feedback the more you learn), I sometimes assign categorical grades, i.e., A-, B+, C-, etc. To make it easier to tell how you are doing in the course, I have derived the following scale:

<b>Grades</b>	
Grade	Numerical Equivalent
A+	4.33
A	4.00
A-	3.66
B+	3.33
B	3.00
B-	2.67
C+	2.33
C	2.00
C-	1.67
D+	1.33
D	1.00
D-	0.67
F	0

## 8.2 Homework Grades

Use the following scale to interpret your homework average.

Grades	
$\text{grade} > 3.5$	A
$2.5 \leq \text{grade} < 3.5$	B
$1.5 \leq \text{grade} < 2.5$	C
$.67 \leq \text{grade} < 1.5$	D
$< .67$	F

All exams must be taken at the designated time. No make up exams will be given. If you miss an exam you will receive a grade of zero.

Unless you are specifically told otherwise by me, all homework must be turned in at the beginning of the class period on the date that it is due. Homework will not be accepted if late.

## 9 Attendance

Regular attendance is expected. You are responsible for any material you miss because of absence. In general, I do not permit students to copy my notes. If you miss class and need a copy of the notes, please obtain them from one of your classmates.

## 10 Cheating Policy

Cheating will not be tolerated. Any violation of the University's academic dishonesty policy will be prosecuted according to University regulations. You will receive a grade of 0 on any test or assignment you are caught cheating on. In addition, you are responsible for the security of your work (in other words, if someone copies your work, you will also receive a zero on the test or assignment).

**Econometrics is Fun!**